BIS 1930 2020 Promoting monetary and financial stability

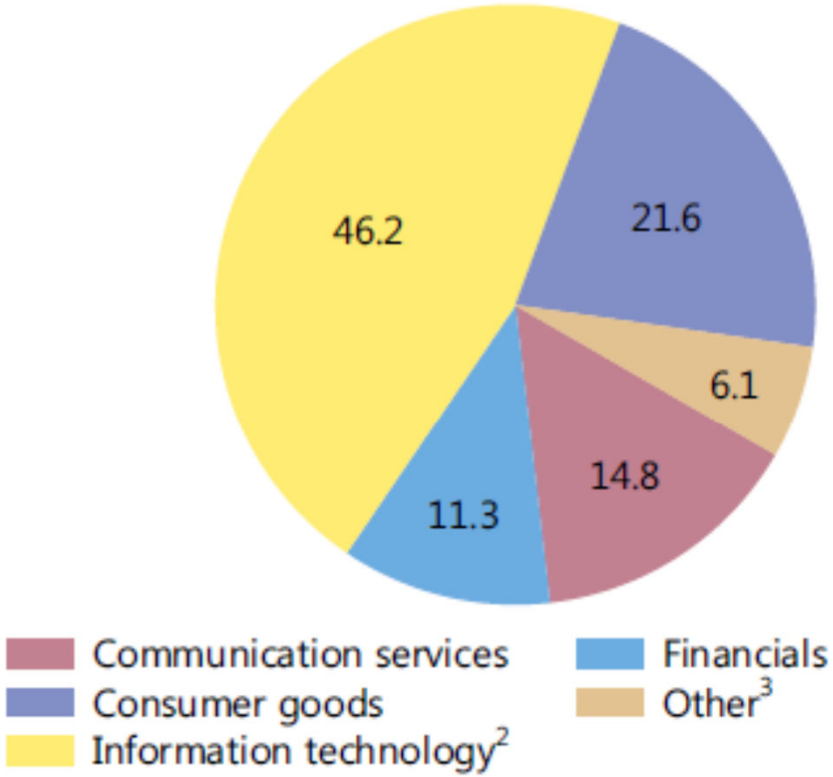
Issues in the regulation of big techs in finance

Hyun Song Shin

Peterson Institute for International Economics virtual event, "A Holistic Look at Big Tech Regulation", 10 February 2021

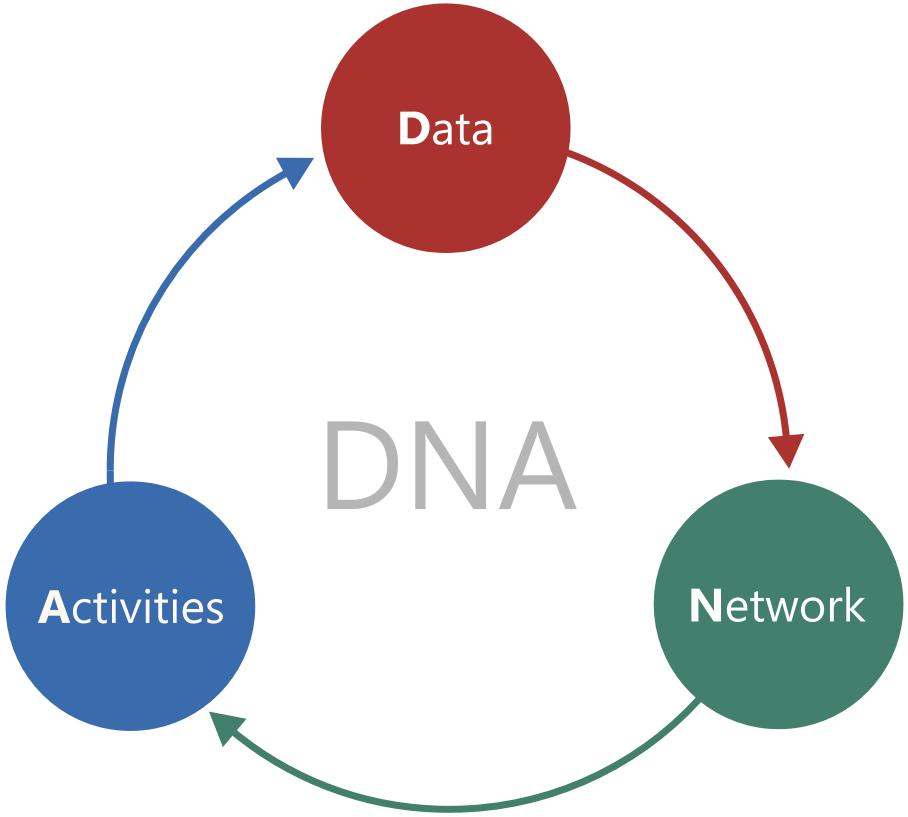
The views expressed here are those of the presenter and not necessarily the Bank for International Settlements

Big techs' revenue by sector of activity



Source: BIS Annual Economic Report, 2019 Chapter III "Bigtechs in finance: opportunities and risks"

DNA (Data-Network-Activities) loop



BIS 1930 2020 Promoting monetary and financial stability

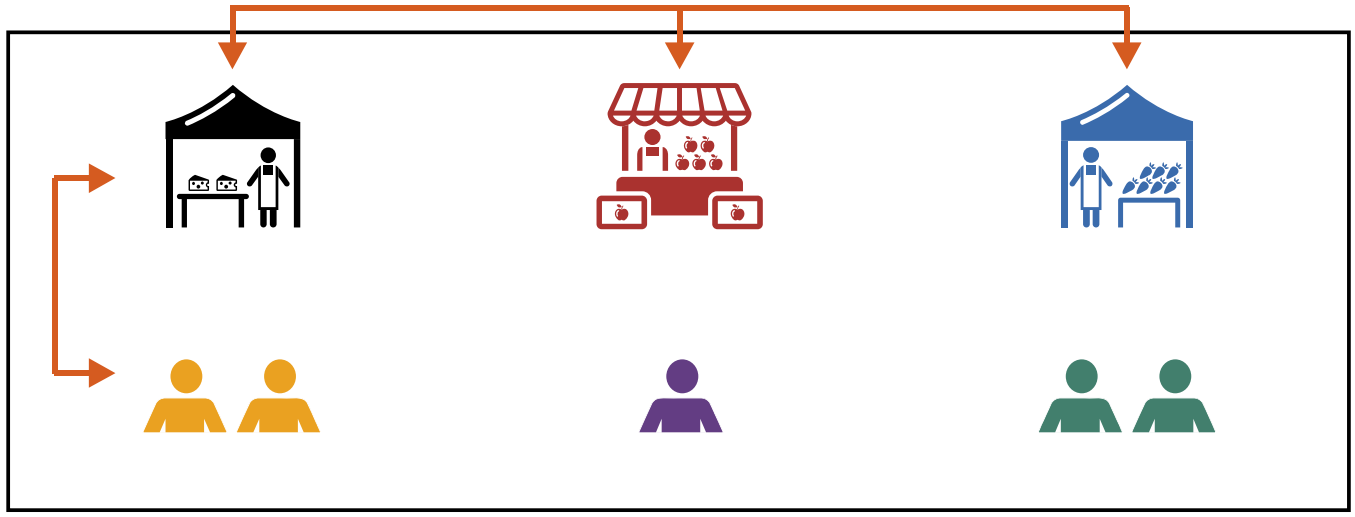
Two examples:

payment services and credit intermediation

From walled garden to public square

An open marketplace can channel network effects into a virtuous circle

- Entry of competing sellers with differentiated goods can make other *sellers* better off
- Customers benefit twice over



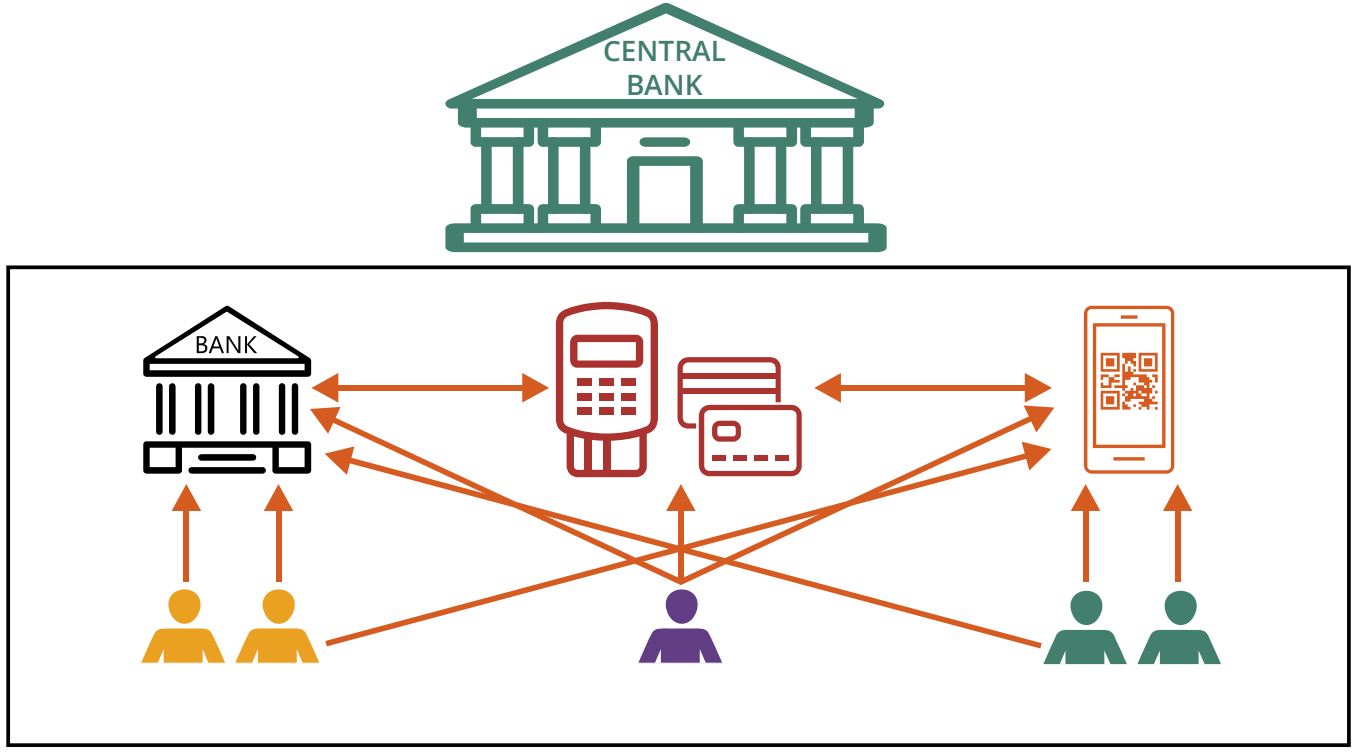
Source: BIS Annual Economic Report, 2020 Chapter III "Central banks and payments in the digital era"

Combination of **data portability** and **APIs** to breach the walled garden

- Data portability allows individual user to give consent on personal data to competing payment service providers (PSPs)
- But data portability by itself is not sufficient to breach the walled garden
  - Portability as a "data dump" will have limited impact
- Need for common technical standards for data transfer, promoting interoperability
- **Application programming interfaces (APIs)**
  - Account information service (AIS) individual user gives consent to competing payment service providers (PSPs) to access data held by existing PSP
  - Payment initiation service (PIS) authentication of user from third party platform to initiate payment

- Examples: EU PSD2, UK, Korea, India, Singapore, Mexico, Brazil, among many others

Central bank's settlement accounts as a public square



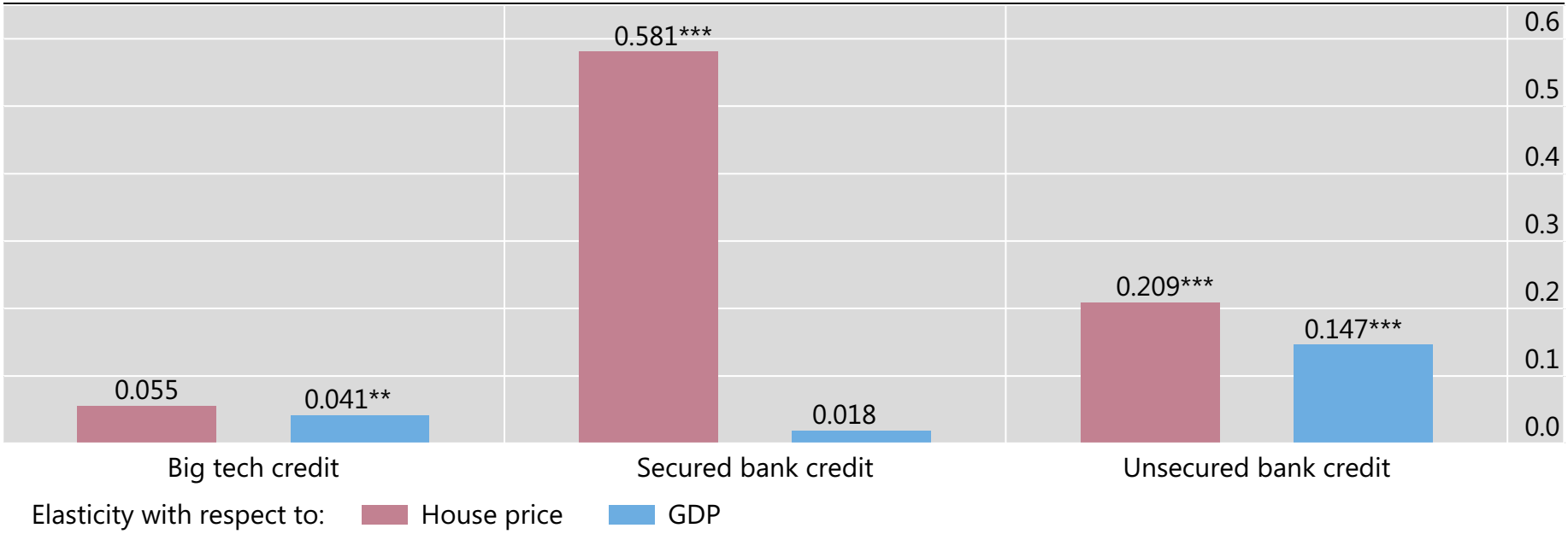
Source: BIS Annual Economic Report, 2020 Chapter III "Central banks and payments in the digital era"

BIS 1930 2020 Promoting monetary and financial stability

Credit intermediation

Big tech credit is less sensitive to house prices and GDP

Elasticity of credit with respect to house prices and GDP

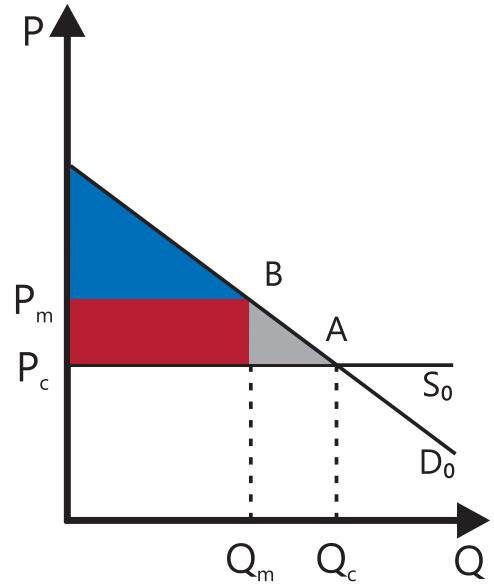


The figure reports the coefficient of three different regressions (one for each credit types) in which the log of credit is regressed with respect to the log of house prices at the city level, the log of GDP at the city level and a complete set of time dummies. Significance level: ** p<0.05; *** p<0.01.

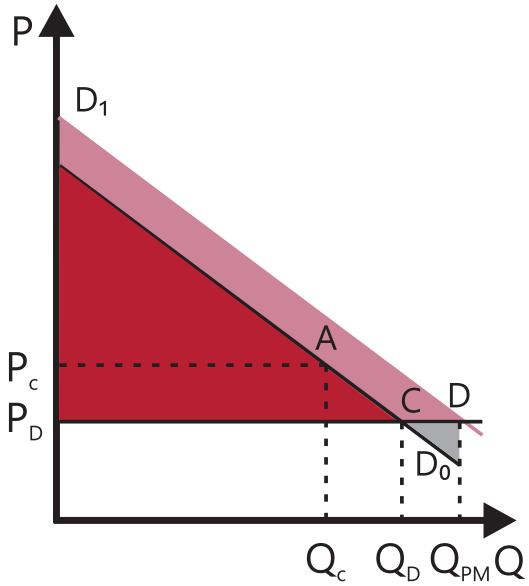
Source: Gambacorta, L, Y Huang, Z Li, H Qiu, and S Chen (2020): "Data vs collateral." *BIS Working Paper*, no 881, September.

Welfare calculus: efficiency versus distribution + entrenchment

A. Pure monopoly



B. Digital monopoly with preference manipulation



Consumer surplus
Welfare (dead weight) loss

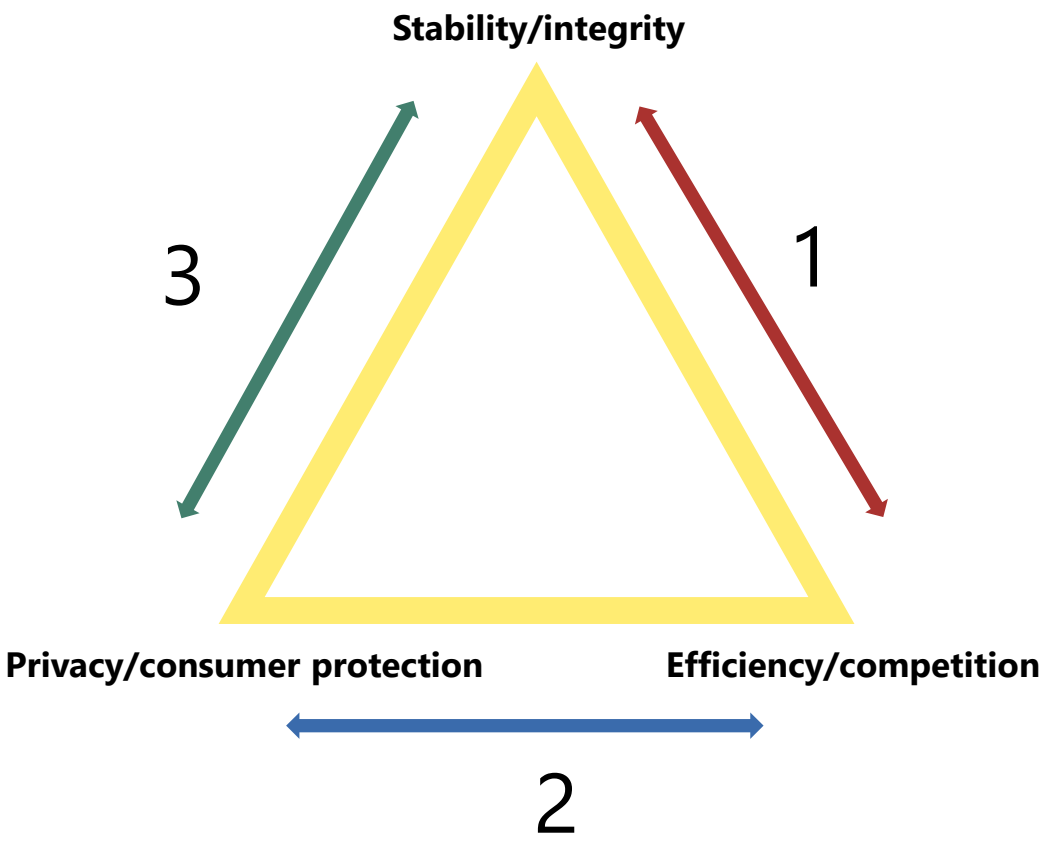
Monopoly surplus
incl. perceived surplus

Sources: Boissay et al (2020); authors' elaboration.

BIS 1930 2020 Promoting monetary and financial stability

Public policy considerations

Policy triangle



1. "Traditional" stability-competition tradeoff
2. Access to data for private providers vs privacy (eg better/worse access to credit; misuse of data)
3. Access to data for regulatory goals vs privacy (eg AML/CFT, supervisory data)

Activities-based or entity-based regulation?

- Big techs hold licenses to perform specific activities
  - Payment
  - Credit
  - Insurance, wealth management, etc.

- Banks, in contrast are subject to entity-based regulation
  - Prudential requirements due to spillover effects to rest of economy and financial system

- What is the scope for greater application of entity-based regulation of bigtechs?
  - Fernando Restoy (2021) "Fintech regulation: how to achieve a level playing field" https://www.bis.org/fsi/fsipapers17.htm

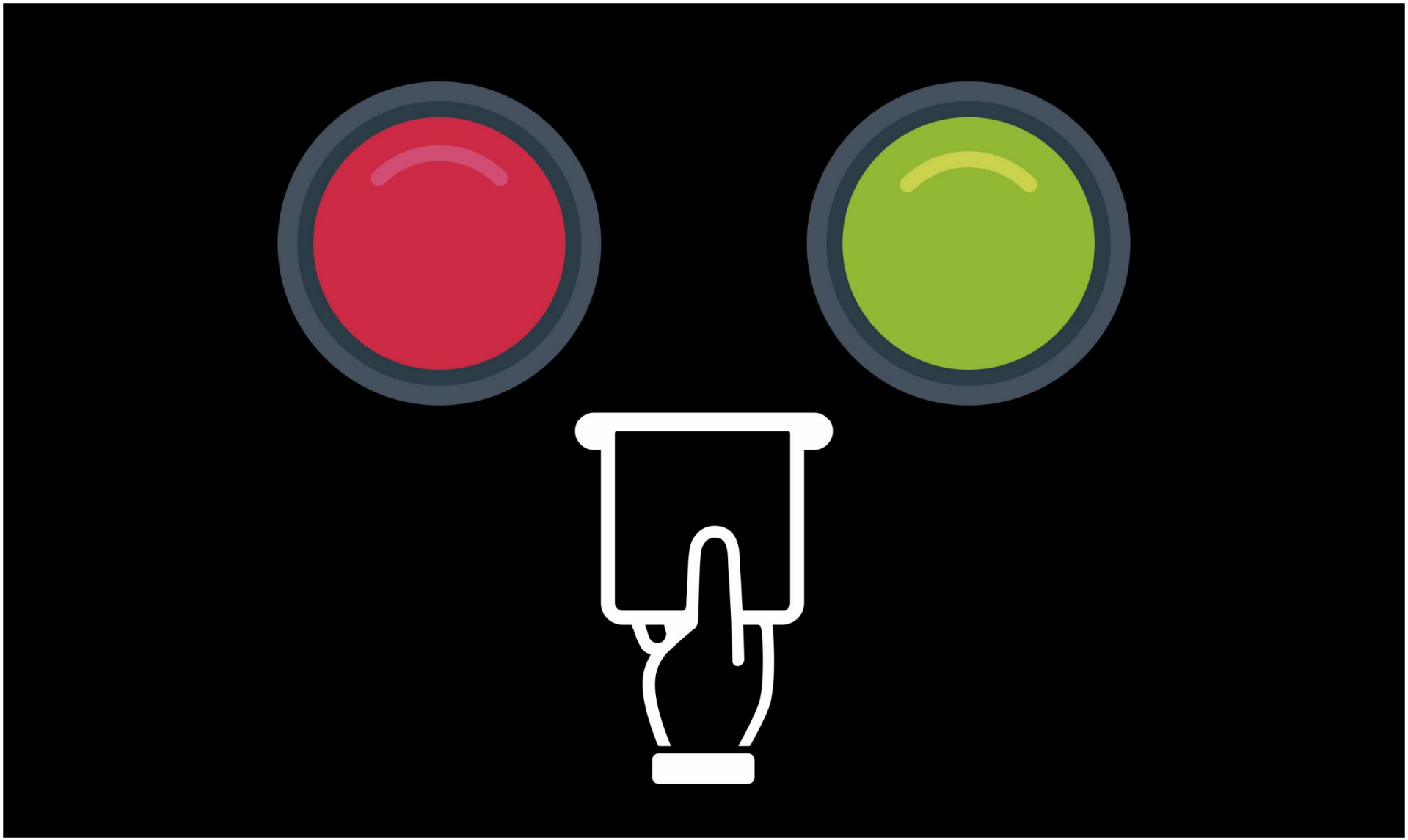
Entity-based approach is gaining ground in major jurisdictions

- United States
  - House Subcommittee on Antitrust, Commercial, and Administrative Law, (report, Oct 2020)
- European Union
  - Draft Digital Services Act (DSA) and Digital Markets Act (DMA) (Dec 2020)
- China
  - State Administration for Market Regulation (SAMR) draft guidelines on internet companies (Nov 2020)

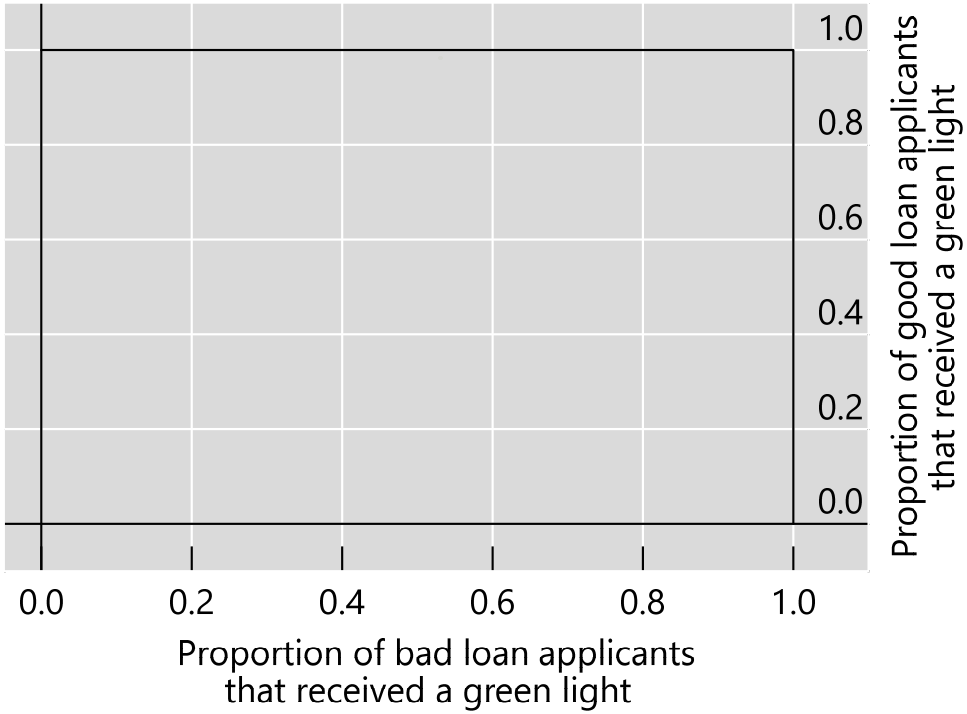
Many questions go beyond the mandate of financial supervisors or central banks; there is a need for structured cooperation with competition and data protection authorities

BIS 1930 2020 Promoting monetary and financial stability

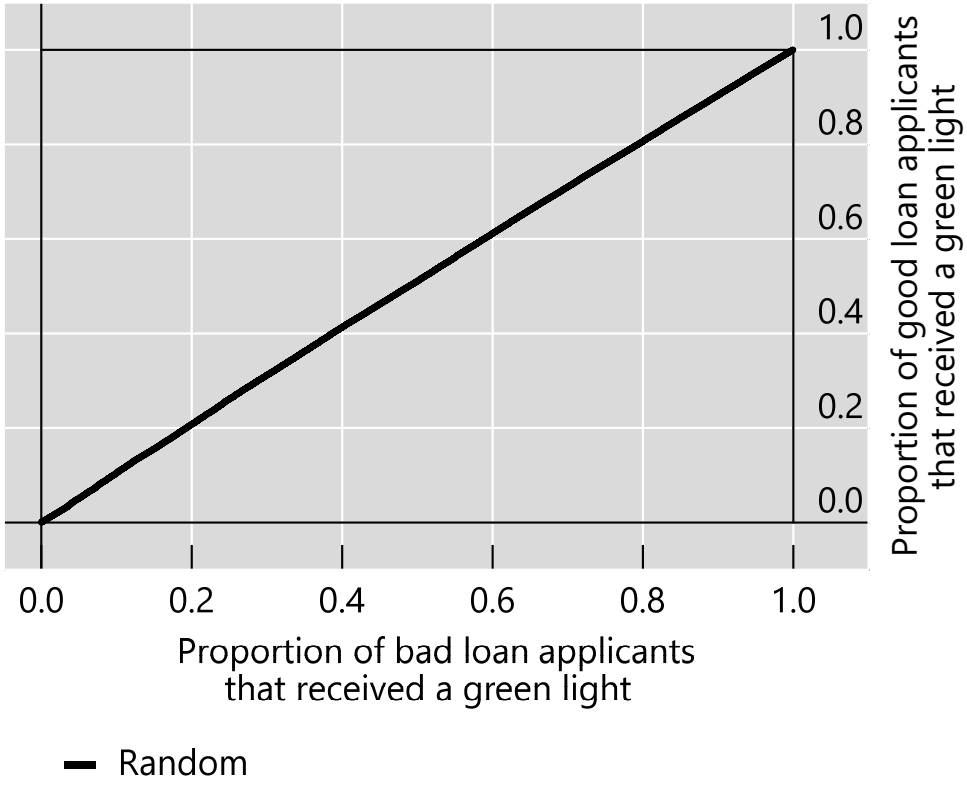
Supplementary slides



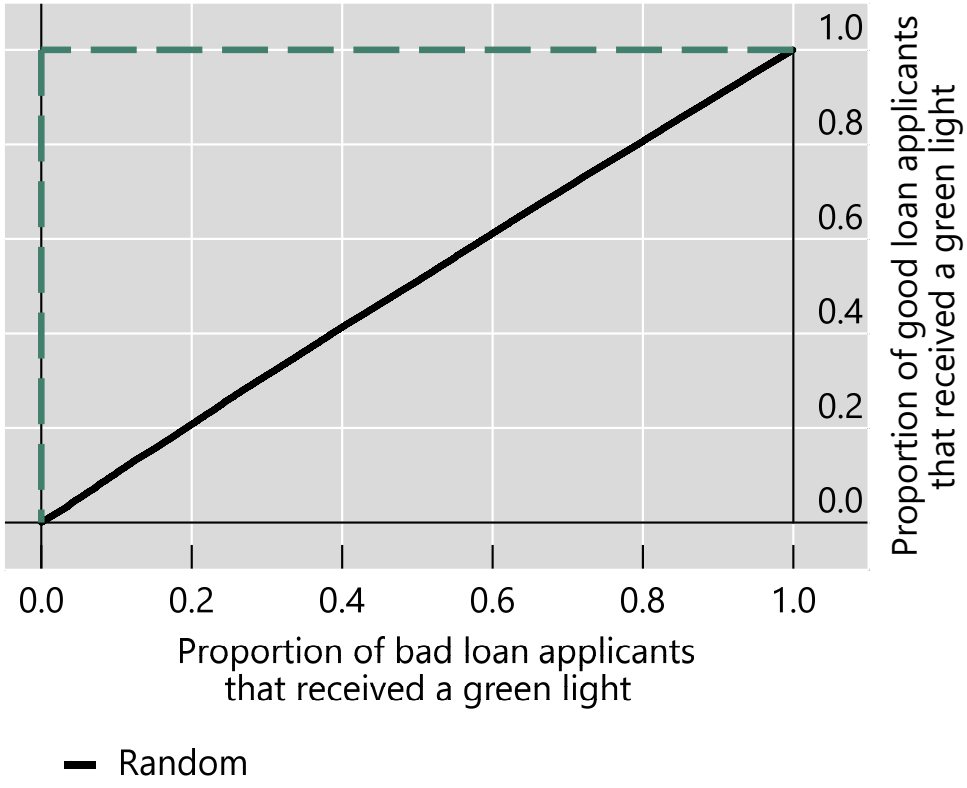
Accuracy of credit scoring models for "unbanked" borrowers



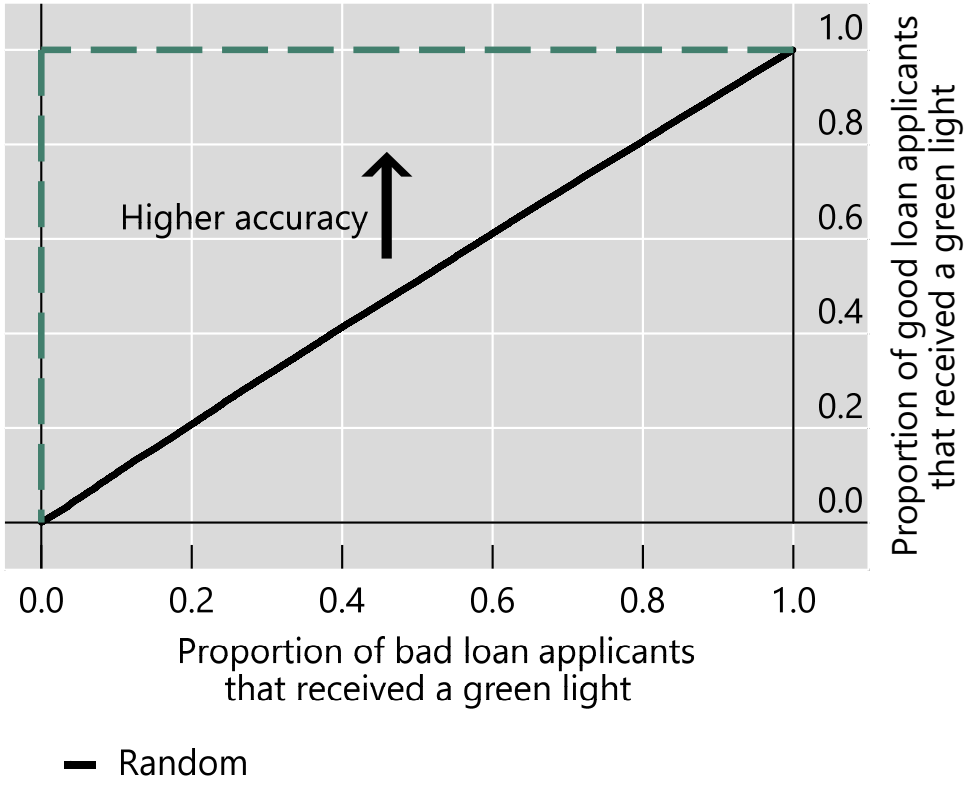
Accuracy of credit scoring models for "unbanked" borrowers



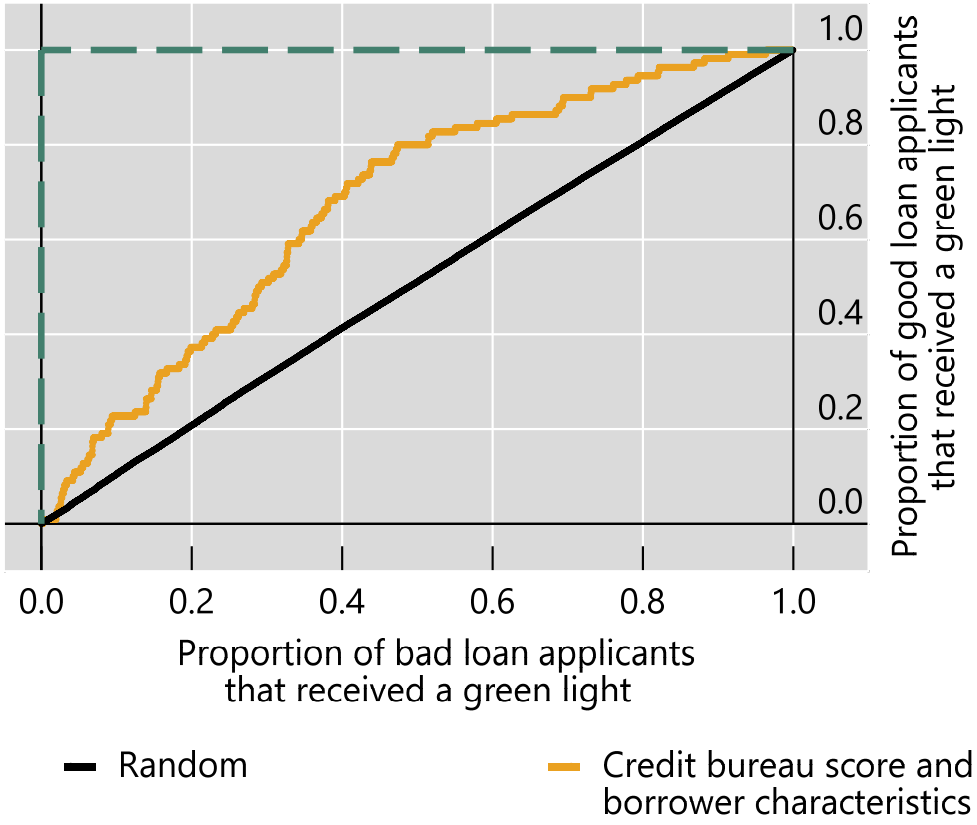
Accuracy of credit scoring models for "unbanked" borrowers



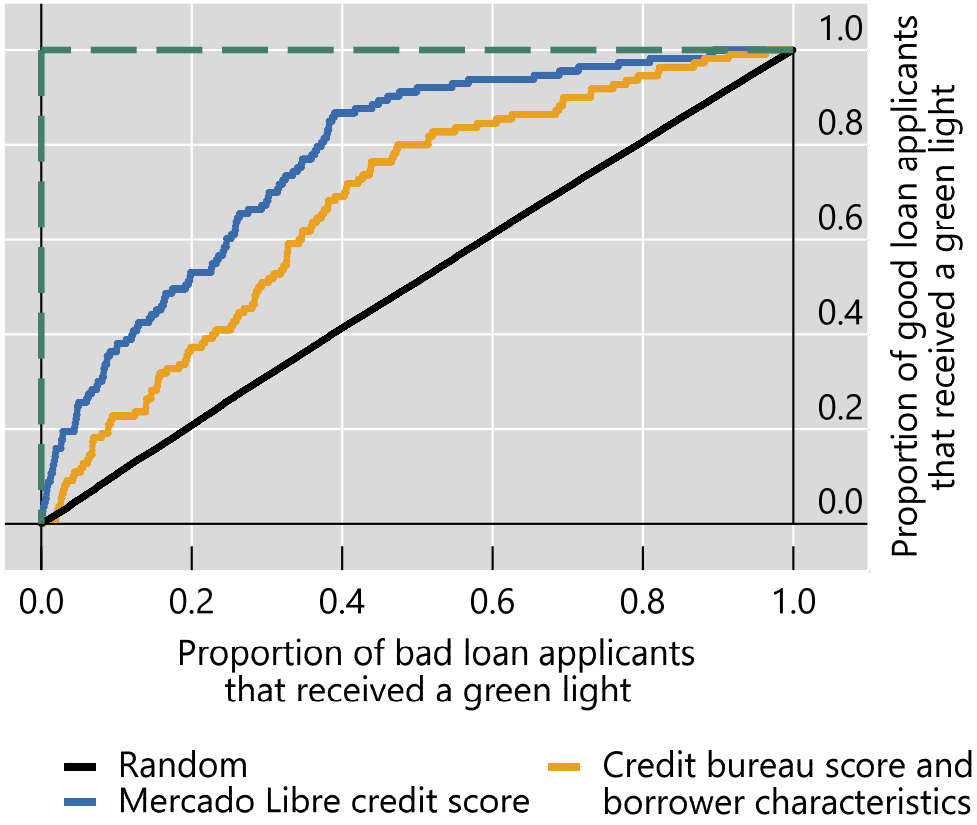
Accuracy of credit scoring models for "unbanked" borrowers



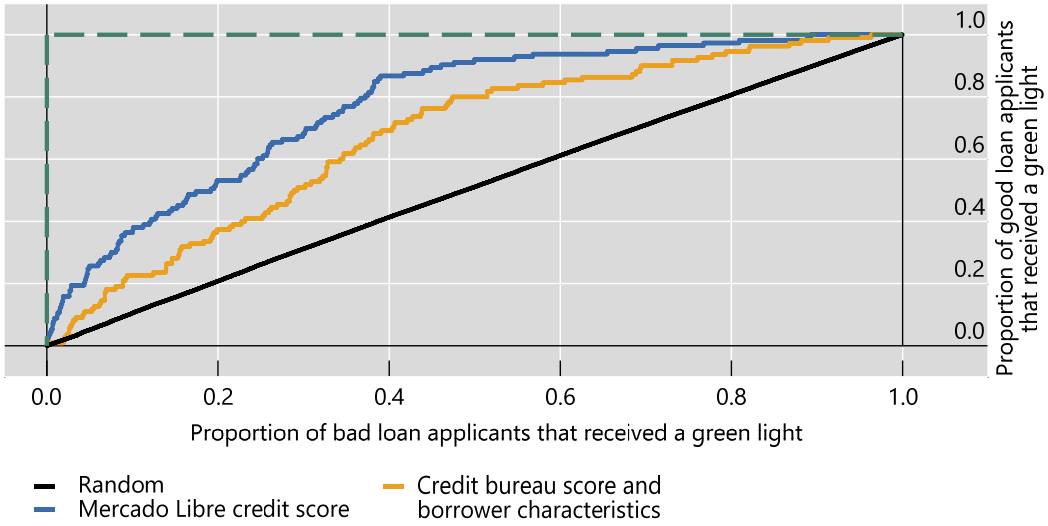
Accuracy of credit scoring models for "unbanked" borrowers



Accuracy of credit scoring models for "unbanked" borrowers



Big tech and credit risk

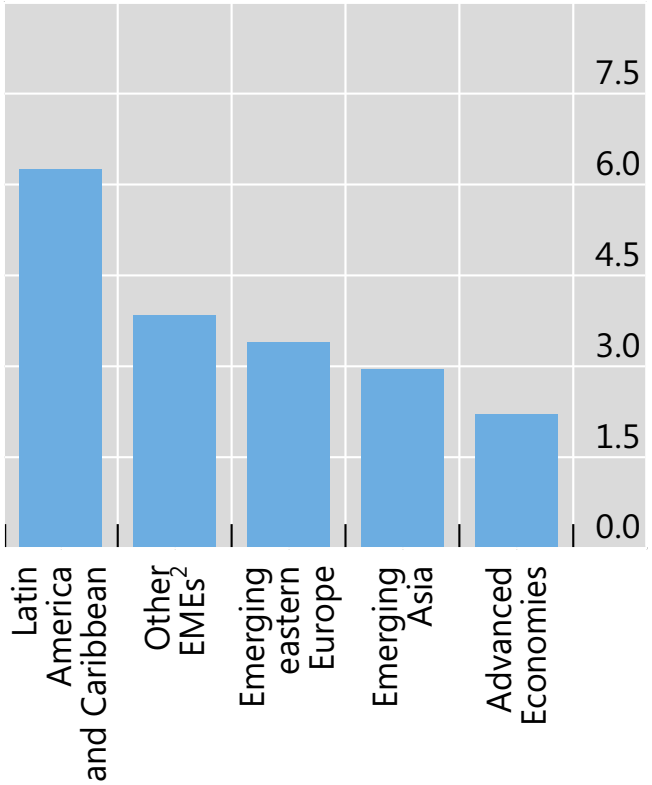


The figure shows true positive rates versus false positive rates for borrowers at different thresholds for three different models:
(I) a logistic regression with only the credit bureau score on firm i at time t as dependent variable; (II) a logistic regression with the credit bureau score and additional borrower characteristic; and (III) a machine learning model based only on the Mercado Libre internal rating. A random model is included for comparison purposes. The ROC curve shows that the machine learning model has superior predictive power to both the credit bureau score only and the credit bureau score with borrower characteristics.
Source: Frost et al (2019).

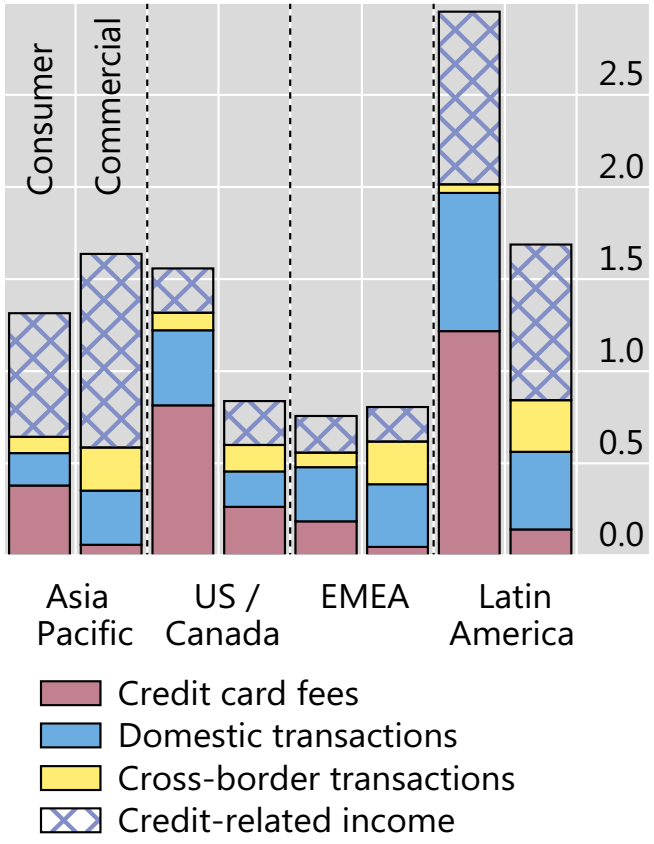
- Big tech lending may differ from bank lending in ways that affect financial risk and financial stability:
  - **Probability of default** (PD): big data, machine learning and the threat of platform exclusion may reduce PDs
  - **Loss given default** (LGD): less use of collateral may reduce recovery rates, while on-platform transactions may increase them
  - **Correlations**: open questions on how risks of previously underserved borrowers correlate with credit risk on existing loan portfolios

Market power in banking and card networks

Net interest margins by region



Domestic payment revenues to GDP



Merchant service costs drive the total cost of card payments: costs associated with 25 euro payment